



## **City of Fargo Cooperating Technical Partners Mapping Activity Statement**

### **Mapping Activity Statement No. 2 –Digital Flood Insurance Rate Map (DFIRM) Production and Development of Updated Flood Data**

In accordance with the Cooperating Technical Partners (CTP) Memorandum of Agreement dated February 4, 2002, between the City of Fargo, North Dakota, and the Federal Emergency Management Agency (FEMA), Mapping Activity Statement No. 2 is as follows:

#### **1. Objective and Scope**

The objective of this Mapping Activity for the City of Fargo is to develop a new or updated Digital Flood Insurance Rate Map (DFIRM) panels and Flood Insurance Study (FIS) report materials (e.g., Flood Profiles, data tables) for the City of Fargo, Cass County, North Dakota. The DFIRM and FIS report will be produced in the FEMA Countywide Format. Additionally, this mapping project will include developing new and/or updated flood hazard data for a 17.5-mile-long reach of the Red River of the North. This reach extends from the flow split approximately 2 river miles upstream of the North Broadway Bridge in the Oakport Township (Clay County, Minnesota) area upstream through Fargo to the northern limit of study for the ongoing FEMA Flood Insurance Restudy for the Red River of the North.

This project will be completed by the following Mapping Partners:

- City of Fargo;
- Houston Engineering, Inc., under contract to the City of Fargo;
- Merrick & Company, under contract to the City of Fargo; and
- Michael Baker Jr., Inc., the FEMA Flood Map Production Coordination Contractor (MCC) for Region VIII.

No effort on the part of the FEMA Study Contractor (SC) for the ongoing Flood Insurance Restudy is anticipated for this mapping project.

The activities for this mapping project, including required Quality Assurance/Quality Control (QA/QC) reviews, and the Mapping Partners that will complete them are summarized in the table below. In the table below, the City of Fargo is identified as “CTP.” All activities that are to be accomplished by the City of Fargo or contractors to the City of Fargo are included in the “CTP” column.

The sections of this Mapping Activity Statement that follow the table describe the specific mapping activities associated with this mapping project. Each activity description identifies the responsible Mapping Partner(s), the FEMA standards that must be met, and resultant map component.

<b>ACTIVITY</b>	<b>CTP</b>	<b>MCC</b>	<b>SC</b>
Activity 1 – Field Surveys and Reconnaissance	<b>X</b>		
Activity 2 – Topographic Data Development	<b>X</b>		
Activity 3 – Independent QA/QC Review of Topographic Data	<b>X</b>		
Activity 4 – Hydraulic Analyses	<b>X</b>		
Activity 5 – Independent QA/QC of Hydraulic Analyses		<b>X</b>	
Activity 6 – Floodplain Mapping (Detailed Riverine Analysis)	<b>X</b>		
Activity 7 – Independent QA/QC Review of Floodplain Mapping		<b>X</b>	
Activity 8 – Base Map Acquisition and Preparation	<b>X</b>		
Activity 9 – DFIRM Production (Non-Revised Areas)		<b>X</b>	
Activity 10 – DFIRM Production (Merge Revised and Non-Revised Information)		<b>X</b>	
Activity 11 – Application of DFIRM Graphic and Database Specifications		<b>X</b>	
Activity 12 – Preliminary FIRM and FIS Report Distribution		<b>X</b>	
Activity 13 – Post-Preliminary Processing		<b>X</b>	

### **Activity 1 - Field Surveys and Reconnaissance**

Responsible Mapping Partner: City of Fargo and/or its contractors

Scope: To supplement any field reconnaissance conducted during the Scoping Phase of this Flood Map Project, the City of Fargo and/or its contractors shall conduct a detailed field reconnaissance of the specified study area to determine conditions along the floodplain(s), types and numbers of hydraulic and/or flood-control structures, apparent maintenance status of existing hydraulic structures, locations of cross sections to be surveyed, and other parameters needed for the hydrologic and hydraulic analyses. In addition to the initial field reconnaissance, Activity 1 includes conducting field surveys, including obtaining channel and floodplain cross sections, identifying or establishing temporary bench marks, and obtaining the physical dimensions of hydraulic and flood-control structures.

Standards: All work under Activity 1 shall be performed in accordance with the standards specified in Section 5 of this Mapping Activity Statement.

Products: In accordance with the Technical Support Data Notebook (TSDN) format described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, the City of Fargo and/or its contractors shall make the following products available to FEMA:

- A report summarizing the findings of the field reconnaissance;
- Maps and drawings that provide the detailed survey results; and
- Survey notebook containing cross sections and structural data.

Appendix M may be downloaded from the FEMA Flood Hazard Mapping website at [http://www.fema.gov/mit/tsd/frm\\_gsam.pdf](http://www.fema.gov/mit/tsd/frm_gsam.pdf).

## **Activity 2 - Topographic Data Development**

Responsible Entity: City of Fargo and/or its contractors

Scope: To supplement the field surveys conducted under Activity 1, additional topographic data of overbank areas of the Red River of the North will be obtained to delineate floodplain boundaries. New topographic data for the Red River of the North will be generated using Light Detection and Ranging (LIDAR) technology. Contour interval and/or accuracy for the topographic data will be selected based on the existing FEMA guidelines and specifications.

Activity 2 also includes developing topographic maps and/or Digital Elevation Models (DEMs) for the Red River of the North using the data collected in Activity 1. Unless directed to do otherwise by FEMA, all new topographic data must be developed and submitted in digital format. Upon completion of topographic data collection and processing for the Red River of the North, the City of Fargo will perform an independent QA/QC review of these data under Activity 3. The City of Fargo and/or its contractors will be responsible for addressing all concerns or questions raised during the independent QA/QC review outlined in Activity 3.

Standards: All work under Activity 2 shall be performed in accordance with the standards specified in Section 5 of this Mapping Activity Statement.

Products: In accordance with the TSDN format described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, the City of Fargo shall make the following products available to FEMA.

- Hardcopy topographic maps;
- Completed Form No. 5 of *Revisions to National Flood Insurance Program Maps, Application/Certification Forms and Instructions* (MT-2). Complete set of MT-2 forms are available from FEMA web site at [http://www.fema.gov/mit/tsd/DL\\_MT-2.htm](http://www.fema.gov/mit/tsd/DL_MT-2.htm);
- Report summarizing methodology and results;
- Mass points and breaklines data on CD-ROM;
- Digital work map with contours;

- Checkpoint analyses to assess the accuracy of data including Root Mean Square Error (RMSE) calculations to support vertical accuracy;
- Identification of remote-sensing data voids and methods used to supplement data voids;
- National Geodetic Survey data sheets for Network Control Points used to control remote sensing and ground surveys;
- Metadata compliant with Federal Geographic Data Committee standards.

### **Activity 3 - Independent QA/QC Review of Topographic Data**

Responsible Entity: City of Fargo

Scope: The City of Fargo shall review the mapping data generated by their contractor under Activity 2 of this Mapping Activity Statement to ensure that these data are consistent with FEMA standards as well as standard engineering practice and are sufficient to prepare the DFIRM.

Standards: All work under Activity 3 shall be performed in accordance with the standards specified in Section 5 of this Mapping Activity Statement.

Products: In accordance with the TSDN format described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, the City of Fargo shall make the following products available to FEMA:

- A Summary Report that describes the findings of the independent QA/QC review; and
- Recommendations to resolve any problems that arise as a result of the independent QA/QC review.

### **Activity 4 – Hydraulic Analyses**

Responsible Entity: City of Fargo and/or its contractors

Scope: The City of Fargo and/or its contractors will perform hydraulic analyses for approximately 17.5 miles of the flooding sources listed in the Section 1 of this Mapping Activity Statement. The modeling will include the 10-, 2-, 1- and 0.2-percent-annual-chance storm events based on existing hydrology. The HEC-RAS hydraulic method will be used for these analyses. The City of Fargo and/or its contractors will use cross-section and field data collected under Activity 1 to perform the hydraulic analyses. The hydraulic analyses will be used to establish flood elevations and regulatory floodways for the subject flooding source.

The City of Fargo and/or its contractors shall use a FEMA checking program, CHECK-2 (if HEC-2 hydraulic model is used) or CHECK-RAS (if HEC-RAS hydraulic model is used), to check the reasonableness of the hydraulic analyses. To facilitate the independent QA/QC review under Activity 5, the City of Fargo and/or its contractors shall provide an explanation for each

unresolved message from the CHECK-2 or CHECK-RAS program, as appropriate. In addition, City of Fargo and/or its contractors will address all concerns or questions regarding this Activity raised during the independent QA/QC review under Activity 5.

Note: If pre- and post- processing tools are used with a FEMA approved model, no review of these “tools” is necessary. Pre- and post-processing software tools, when used in conjunction with hydraulic models that are not currently on FEMA’s accepted model list, must be reviewed and approved by FEMA before performing work under this Activity. Similarly, if software tools were used to perform modeling routines that emulate a model on FEMA’s accepted model list, however, this source code has been rewritten to perform these tasks, these models also must be submitted to FEMA for review and approval in accordance with the conditions outlined in Subparagraph 65.6(a)(6) (i), (ii), and (iii) of the NFIP regulations.}

Standards: All work under Activity 4 shall be performed in accordance with the standards specified in Section 5 of this Mapping Activity Statement.

Products: Upon completion of hydraulic modeling for the Red River of the North, the City of Fargo and/or its contractors will submit the results to the MCC for an independent QA/QC review as described in Activity 5.

In accordance with the TSDN format described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, the City of Fargo and/or its contractors shall make the following products available to FEMA:

- Digital profiles of the 10-, 2-, 1- and 0.2-percent-annual-chance water-surface elevations representing existing conditions using FEMA’s RASLOT program or similar software;
- Floodway Data Table that is compatible with the DFIRM database;
- Digital copies of all hydraulic modeling (input and output) files;
- Table with range of Manning’s “n” values;
- An explanation for each unresolved message from CHECK-2 or CHECK-RAS program, as appropriate;
- All backup data used in the analyses;
- Draft text for inclusion in Section 3.2, Hydraulic Analyses, of the FIS report; and
- All input and output data, intermediate data processing products, GIS data layers, and final products.

## **Activity 5 - Independent QA/QC Review of Hydraulic Analyses**

Responsible Entity: FEMA MCC

Scope: The MCC shall review the technical, scientific, and other information submitted by the City of Fargo and/or its contractors under Activity 4 of this Mapping Activity Statement to ensure that the data and modeling are consistent with FEMA standards and standard engineering

practices and are sufficient to revise the FIRM. This independent QA/QC review of the hydraulic analyses will include, at a minimum, the activities listed below.

- Review submittal for technical and regulatory adequacy, completeness of required information, application/certification forms, and supporting data and documentation. The technical review will focus on the following:
  - Use of acceptable models;
  - Starting water-surface elevations;
  - Cross-section geometry;
  - Manning's "n" values and expansion/contraction coefficients;
  - Bridge and culvert modeling;
  - Discharges;
  - Regulatory floodway computation methods; and
  - Tie-in to upstream and downstream non-revised profiles.
- Use the CHECK-2 (when HEC-2 model was used) or CHECK-RAS (when HEC-RAS model was used) programs to flag potential problems and focus review efforts.
- Maintain records of all contacts, reviews, recommendations, and actions and make them readily available to FEMA.
- Maintain an archive of all data submitted for hydraulic modeling review. (All supporting data must be retained for 3 years from the date funding recipient submits its final expenditure report to FEMA.)

Standards: All work under Activity 5 shall be performed in accordance with the standards specified in Section 5 of this Mapping Activity Statement.

Products: In accordance with the TSDN format described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, the MCC shall make the following products available to FEMA:

- A Summary Report that describes the findings of the independent QA/QC review; and
- Recommendations to resolve any problems that arise as a result of the independent QA/QC review.

## **Activity 6 – Floodplain Mapping (Detailed Riverine Analysis)**

Responsible Entity: City of Fargo and/or its contractors

Scope: The City of Fargo and/or its contractors shall delineate digital floodplain and regulatory floodway boundaries for the flooding source listed in Section 1 of this Mapping Activity Statement. The mapping will incorporate all revised hydraulic modeling and newly acquired topographic information. The City of Fargo and/or its contractors will delineate the floodplain boundaries for the 1- and 0.2-percent recurrence intervals and the regulatory floodway on a digital work map based on existing topography or topographic data developed under Activity 2

of this Mapping Activity Statement. The City of Fargo and/or its contractors will provide an explanation for selecting an existing topographic map if one is used for the floodplain boundary delineation. The City of Fargo and/or its contractors will incorporate the results of all effective Letters of Map Change within the revised area as appropriate. In addition, the City of Fargo and/or its contractors will address all concerns or questions regarding this Activity raised during the independent QA/QC review outlined in Activity 7 of this Mapping Activity Statement.

Standards: All work under Activity 6 shall be performed in accordance with the standards specified in Section 5 of this Mapping Activity Statement.

Products: Upon completion of floodplain mapping, the City of Fargo and/or its contractors will submit the results to the MCC for an independent QA/QC review under Activity 7 of this Mapping Activity Statement. In accordance with the TSDN format described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, the City of Fargo and/or its contractors shall make the following products available to FEMA:

- Digital work maps with the 1- and 0.2-percent-annual-chance floodplain boundary delineations, regulatory floodway boundary delineations, cross sections, Base Flood Elevations (BFEs), zone insurance risk zone designation labels, and all applicable base map features;
- DFIRM mapping files, in one of the FEMA-specified GIS file and database formats;
- Metadata files describing the DFIRM data, including the required information shown in the examples shown in FEMA's DFIRM Specifications;
- Complete set of plots of the DFIRM panels showing all detailed flood hazard information at a suitable scale;
- A QA/QC report that includes a description and the results of all automated or manual QA/QC steps taken during the preparation of the DFIRM; and
- Any backup or supplemental information used in the mapping required for the independent QA/QC review outlined in Activity 9.

### **Activity 7 - Independent QA/QC Review of Floodplain Mapping**

Responsible Entity: FEMA MCC

Scope: The MCC shall review the floodplain work maps submitted by the City of Fargo and/or its contractors under Activity 6 of this Mapping Activity Statement to ensure that the results of the hydraulic analyses are accurately represented on the work maps. This work will include, at a minimum, the following activities:

- Review the cross sections for proper location and orientation on the work map and agreement with the Floodway Data Table.

- Review the BFEs shown on the work map for proper location and agreement with the results of the hydraulic modeling.
- Review the regulatory floodway widths for agreement with the widths shown in the Floodway Data Table and the results of the hydraulic modeling.
- Review the floodplain boundaries for agreement with the flood elevations shown in the Floodway Data Table and the contour lines and other topographic information shown on the work maps.
- Floodplain widths at cross section must match Floodway Data Table.
- Floodplain boundaries as shown on work maps match profiles.
- Ensure flood insurance risk zone designations are indicated properly.
- Ensure DFIRM mapping files are in one of the GIS file and database formats specified in FEMA's DFIRM Specifications and conform to those specifications for content and attribution.
- Ensure metadata files describing the DFIRM data include the required information and follow the examples shown in FEMA's DFIRM Specifications.

Standards: All work under Activity 7 shall be performed in accordance with the standards specified in Section 5 of this Mapping Activity Statement.

Products: In accordance with the TSDN format described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, the MCC shall make the following products available to FEMA:

- A Summary Report that describes the findings of the independent QA/QC review noting any deficiencies and providing recommendations to resolve them or agreeing with the mapping results; and
- An annotated work map with all questions and/or concerns indicated if necessary.

## **Activity 8 - Base Map Acquisition and Preparation**

Responsible Entity: City of Fargo

Scope: Activity 8 consists of obtaining the digital base map for the project. The digital base map will be provided by the City of Fargo. The City of Fargo shall:

- Obtain digital files (raster or vector) of the base map;
- Secure necessary permissions from the map source to allow FEMA's use and distribution of hardcopy and digital map products using the digital base map, free of charge;
- Certify that the digital data meet the minimum standards and specifications that FEMA requires for DFIRM production; and
- Populate the DFIRM database for base map features and applicable data.



Standards: All work under Activity 8 shall be performed in accordance with the standards specified in Section 5 of this Mapping Activity Statement.

Products: In accordance with the TSDN format described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, the City of Fargo and/or its contractors shall make the following products available to FEMA.

- Written certification that the digital data meet the minimum FEMA standards and specifications; and
- Documentation that FEMA can use the digital base map.

### **Activity 9 - DFIRM Production (Non-Revised Areas)**

Responsible Entity: FEMA MCC

Scope: For all flooding sources except those specified in Section 1 of this Mapping Activity Statement, the MCC will convert the effective FIRM panels to digital format in conformance with FEMA DFIRM specifications as presented in Appendix K of *Guidelines and Specifications for Flood Hazard Mapping Partners*. The MCC will use the base map acquired under Activity 8 of this Mapping Activity Statement for the conversion.

Activity 9 covers the digitization of 3 FIRM panels. The MCC also will incorporate LOMCs issued by FEMA since the current effective FIRM. The digital flood theme for the flooding source specified in Section 1 will not be digitized as part of Activity 9; rather, the MCC will leave “holes” in the digital flood theme that will be filled in as part of Activity 10 of this Mapping Activity Statement using digital flood data from Activity 6 of this Mapping Activity Statement.

Standards: All work under Activity 9 shall be performed in accordance with the standards specified in Section 5 of this Mapping Activity Statement.

Products: In accordance with the TSDN format described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, the MCC shall make the following products available to FEMA.

- DFIRM mapping files, in one of the GIS file and database formats specified in FEMA’s DFIRM Specifications;
- Metadata files describing the DFIRM data, including the required information shown in the examples shown in FEMA’s DFIRM Specifications;
- Complete set of plots of the DFIRM panels showing all unrevised flood hazard information taken from the effective FIRMs and FBFMs at a suitable scale; and
- A QA/QC report that includes a description and the results of all automated or manual quality assurance steps taken during the preparation of the DFIRMs, including a check that the road and floodplain relationship is maintained for all unrevised areas.

## **Activity 10 – DFIRM Production (Merge Revised and Non-Revised Information)**

Responsible Entity: FEMA MCC

Scope: Upon completion of the Floodplain Mapping activity (Activity 6) for the revised flooding sources and the Digital FIRM Production activity (Activity 9) for non-revised flooding sources, the digital floodplain data will be merged into a single, updated Digital FIRM. This work will include tie-in of flood hazard information with contiguous communities that were not studied as part of this project. Also, the revised and non-revised Flood Profiles, floodplain boundaries, and regulatory floodway boundaries will be tied-in. The MCC will coordinate with the City of Fargo and/or its contractors, as necessary, to resolve any potential tie-in issues.

Standards: All work under Activity 10 shall be performed in accordance with the standards specified in Section 5 of this Mapping Activity Statement.

Products: In accordance with the TSDN format described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, the MCC shall make the following products available to FEMA.

- Digital work maps, with 1-percent-annual-chance floodplain boundary delineations, cross sections, BFEs, flood insurance risk zone designation labels, and all applicable base map features shown;
- DFIRM mapping files, in one of the FEMA-approved GIS file and database formats, provided on CD-ROM;
- Metadata files describing the DFIRM data, including the required information shown in the examples shown in FEMA's DFIRM Specifications, provided on CD-ROM;
- Complete set of plots of DFIRM panels showing all detailed flood hazard information at a suitable scale;
- A QA/QC report that includes a description and the results of all automated or manual QA/QC steps taken during the preparation of the DFIRM.

## **Activity 11 – Application of DFIRM Graphic and Database Specifications**

Responsible Entity: FEMA MCC

Scope: Upon completion of merging of effective and revised floodplain mapping into a single, updated DFIRM (Activity 10), the MCC will apply the final FEMA DFIRM graphic and database specifications to the DFIRM files produced by the City of Fargo. This work will include adding all required annotation, line patterns, area shading, and map collar information (e.g., map borders, title blocks, legends, notes to user).

Standards: All work under Activity 11 shall be performed in accordance with the standards specified in Section 5 of this Mapping Activity Statement.

Products: In accordance with the TSDN format described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, the MCC shall make the following products available to FEMA.

- DFIRM mapping files in one of the FEMA-approved GIS file and database formats, provided on CD-ROM;
- DFIRM database files in one of the FEMA-approved database formats, provided on CD-ROM;
- Metadata files describing the DFIRM data including the required information based on the examples shown in the FEMA DFIRM specifications;
- Complete set of plots of the DFIRM panels showing all details at the agreed-upon scale(s); and
- A QA/QC report that includes a description and the results of all automated or manual quality assurance steps taken during the preparation of the DFIRM.

## **Activity 12 – Preliminary DFIRM and FIS Report Distribution**

Responsible Entity: FEMA MCC

Scope: Activity 12 consists of the final preparation, review, and distribution of the Preliminary copies of the DFIRM and FIS report for community and public review and comment. The activities to be performed are summarized below.

*FIS Report Preparation:* The MCC will prepare an FIS report in the format required by FEMA.

*Final QA/QC Review of Preliminary DFIRM and FIS Report:* The MCC will perform a final QA/QC review of the Preliminary DFIRM and FIS report, including all data tables, Flood Profiles, and other components of the FIS report and the news release discussed below. The QA/QC review procedures will be consistent with the *Guidelines and Specifications for Flood Hazard Mapping Partners*.

*Discrepancy Resolution:* The MCC will work with the City of Fargo and its contractors to resolve discrepancies identified during the final QA/QC review.

*Distribution of Preliminary DFIRM and FIS Report:* The MCC will distribute the Preliminary copies of the DFIRM and FIS report to community officials, State agencies, and others as deemed appropriate by FEMA.

*News Release Preparation:* The MCC will prepare news release notifications of BFE changes, perform a QA/QC review for accuracy and compliance with FEMA format requirements, and submit them to FEMA for review.

*Summary of Map Actions (SOMA) Preparation:* The MCC will prepare a Preliminary SOMA listing the Letters of Map Change that will be affected by the DFIRM.

Standards: All work under Activity 12 shall be performed in accordance with the standards specified in Section 5 of this Mapping Activity Statement.

Products: The MCC will make the following products available when requested by FEMA:

- Preliminary transmittal letters shall be prepared. These letters and any additional letters requested by FEMA shall be prepared in accordance with the current version of the *FEMA Document Control Procedures Manual*.
- Preliminary sets of DFIRM and FIS report, including all updated data tables and Flood Profiles shall be mailed to the CEO and floodplain administrator of each community, the State NFIP Coordinator, the FEMA Regional Office, and others as directed by FEMA.
- Preliminary SOMA document, prepared in accordance with FEMA requirements, shall be provided.
- Revised DFIRM mapping files in the FEMA-approved format shall be provided on CD-ROM.
- Revised DFIRM database files in the FEMA-approved format shall be provided on CD-ROM.
- Revised metadata files in the FEMA-approved format shall be provided on CD-ROM.
- A QA/QC report that includes a description and the results of all automated or manual QA/QC steps taken during the preparation of the Preliminary DFIRM and FIS report shall be provided.

### **Activity 13 - Post-Preliminary Processing**

Responsible Partners: City of Fargo and FEMA MCC

Scope: Activity 13 consists of finalizing the DFIRM and FIS report after the Preliminary copies of the DFIRM and FIS report have been issued for public review and comment. The activities to be performed are summarized below.

*Initiation of Statutory 90-Day Appeal Period:* When required, upon completion of a 30-day community comment period and/or final coordination meeting with the community, the MCC will arrange for and verify that the following activities are completed in accordance with the current version of the *FEMA Guidelines and Specifications for Flood Hazard Mapping Partners* and *Document Control Procedures Manual*: (1) a proposed BFE determination letter is sent to the community CEO and floodplain administrator; (2) a news release is published in a prominent newspaper with local circulation; and (3) a notice is published in the *Federal Register*.

*Resolution of Appeals and Protests:* The City of Fargo and the MCC will support FEMA in reviewing and resolving appeals and protests received during the 90-day appeal period. For each appeal and protest, the following activities will be conducted as appropriate: (1) initial processing and acknowledgment of the submittal; (2) technical review of the submittal;

(3) preparation of letters requesting additional supporting data; (4) performance of revised analyses; and (5) preparation of the draft resolution letter and revised DFIRM and FIS report materials for FEMA review. The MCC will mail all associated correspondence upon authorization by FEMA.

*Preparation of Special Correspondence:* The City of Fargo and the MCC will support FEMA in responding to comments not received within the 90-day appeal period (referred to as “special correspondence”), including drafting responses for FEMA review when appropriate. The MCC also will mail the final correspondence and distributed appropriate copies upon receipt of authorization from FEMA.

*Revision of FIRM and FIS Report:* If necessary, the MCC will work together the City of Fargo and its contractors to revise the DFIRM and FIS report at the direction of the FEMA Regional Project Officer and distribute Revised Preliminary copies of the DFIRM and FIS report.

*Processing of Letter of Final Determination:* The MCC will work with FEMA to establish the effective date for the DFIRM and FIS report, and will prepare a Letter of Final Determination for FEMA review in accordance with the FEMA *Document Control Procedures Manual*. The MCC also will mail the final correspondence and distributed appropriate copies upon receipt of authorization from FEMA.

*Processing of Final DFIRM and FIS Report for Printing:* The MCC will prepare final reproduction materials for the DFIRM and FIS report and provide these materials to the FEMA Map Service Center for printing by the U.S. Government Printing Office. The MCC also will prepare the appropriate paperwork to accompany the DFIRM and FIS report, including the Transmittal Letter to the Community CEO, the Print Processing Worksheet, the Printing Requisition Form, and the Community Map Actions Form.

*Archiving Data:* The MCC will ensure the engineering backup data and related correspondence are packaged and stored properly in the library archives until they are transmitted to the FEMA Engineering Study Data Package Facility.

Standards: All work under Activity 13 shall be performed in accordance with the standards specified in Section 5 of this Mapping Activity Statement.

Products: In accordance with the requirements provided in the current version of the FEMA *Guidelines and Specifications for Flood Hazard Mapping Partners* and *Document Control Procedures Manual*, the City of Fargo and/or the MCC shall make the following products available to FEMA:

- Documentation that the news release(s) was published in accordance with FEMA requirements;
- Documentation that the appropriate *Federal Register* notices were published in accordance with FEMA requirements;
- Draft Letter of Final Determination and associated backup data and information for FEMA review;

- Draft Special Correspondence and backup data and information for FEMA review;
- Appeal and Protest resolution letters, and all backup data and information for FEMA review;
- DFIRM negatives and printed FIS reports, including all updated data tables and Flood Profiles; and
- Complete, organized Engineering Study Data Package.

## **2. Reporting:**

All Project Team members shall comply with the reporting requirements summarized in Volume 3 of *Guidelines and Specifications for Flood Hazard Mapping Partners*. In addition, the following reporting requirements shall be met:

- If any issues arise that could affect the completion of a task within the proposed scope or budget, the Mapping Partner that is responsible for that task must complete a Special Problem Report (SPR) as soon as possible after the issue is identified and submit it to the FEMA Lead. The SPR should describe the issue and propose possible resolutions.
- The City of Fargo will be responsible for collecting and maintaining a set of deliverables for all tasks and shall compile a comprehensive TSDN for the entire project.
- All supporting documentation for the tasks in this Mapping Activity Statement shall be submitted in the TSDN format in accordance with Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*.

## **3. Period of Performance:**

The mapping activities outlined in this Mapping Activity Statement will begin on April 1, 2002, and will be completed no later than April 1, 2004. The mapping activities may be terminated at the option of FEMA or the City of Fargo in accordance with the provisions of the Partnership Agreement dated February 4, 2002.

## **4. Funding/Cost-Sharing:**

## **5. Standards:**

The standards relevant to this Mapping Activity Statement are provided in FEMA's *Guidelines and Specifications for Flood Hazard Mapping Partners* (February 2002). Information on the

correct volume, appendix, section, or subsection to be referenced for activity are summarized in the table that appears in Appendix A at the end of this Mapping Activity Statement. These Guidelines may be viewed or downloaded from the FEMA Flood Hazard Mapping website from the following address: [www.fema.gov/mit/tsd/gs\\_main.htm](http://www.fema.gov/mit/tsd/gs_main.htm).

## 6. Schedule and Milestones:

The mapping activities for this Mapping Activity Statement shall be completed in accordance with the schedule below. If changes to this schedule are required, the responsible Mapping Partner shall coordinate with FEMA and the other Mapping Partners in a timely manner.

ACTIVITY	RESPONSIBLE PARTNER	DATE DUE
Activity 1 – Field Surveys and Reconnaissance	CTP	6-15-02
Activity 2 – Topographic Data Development	CTP	6-15-02
Activity 3 – Independent QA/QC Review of Topographic Data	CTP	6-30-02
Activity 4 – Hydraulic Analyses	CTP	10-15-02
Activity 5 – Independent QA/QC of Hydraulic Analyses	MCC	10-29-02
Activity 6 – Floodplain Mapping (Detailed Riverine Analysis)	CTP	11-30-02
Activity 7 – Independent QA/QC Review of Floodplain Mapping	MCC	12-15-02
Activity 8 – Base Map Acquisition and Preparation	CTP	1-15-03
Activity 9 – DFIRM Production (Non-Revised Areas)	MCC	3-15-03
Activity 10 – DFIRM Production (Merge Revised and Non-Revised Information)	MCC	4-15-03
Activity 11 – Application of DFIRM Graphic and Database Specifications	MCC	4-15-03
Activity 12 – Preliminary FIRM and FIS Report Distribution	MCC	4-30-03
Activity 13 – Post-Preliminary Processing	MCC	2-15-04

## **7. Certification:**

The following certifications apply to this Mapping Activity Statement:

### **Activity 1 (Field Surveys and Reconnaissance) and Activity 2 (Topographic Data Development)**

- Registered Professional Engineer or Licensed Land Surveyor will certify topographic information, in accordance with 44 CFR 65.5(c).
- Certification of topographic information by the American Society for Photogrammetry and Remote Sensing is also acceptable.

### **Activity 4 (Hydraulic Analyses), and Activity 6 (Floodplain Mapping)**

- Hydraulic analyses and data will be certified by a Registered Professional Engineer or Licensed Land Surveyor in accordance with 44 CFR 65.6(f).
- Topographic information will be certified by a Registered Professional Engineer or Licensed Land Surveyor in accordance with 44 CFR 65.5(c).
- Any levee systems to be accredited will be certified in accordance with 44 CFR 65.10(e).

### **Activity 6 (Floodplain Mapping), and Activity 9 (DFIRM Production – Non-Revised Areas)**

The DFIRM metadata files will include a description of the horizontal and vertical accuracy of the DFIRM base map and floodplain information.

### **Activity 8 (Base Map Acquisition and Preparation)**

- Community official or responsible party will provide written certification that the digital data meet FEMA's minimum standards and specifications.
- Responsible Mapping Partner will provide documentation that the digital base map can be used by FEMA.

## **8. Technical Assistance and Resources:**

The City of Fargo may obtain copies of FEMA-issued LOMCs, archived engineering backup data, and data collected as part of the Mapping Needs Assessment Process from the MCC. The MCC may be contacted by telephone at 703-960-8800 or by facsimile transmission at 703-960-9125.

General technical and programmatic information, such as FEMA 265, the Quick-2 computer program, and the MT-2 application/certification forms, can be downloaded from the FEMA Flood Hazard Mapping website ([www.fema.gov/mit/tsd](http://www.fema.gov/mit/tsd)).



Specific technical and programmatic support may be provided through the MCC. Such assistance should be requested through the MCC Project Officer at FEMA Headquarters specified in Section 11 of this Mapping Activity Statement.

The City of Fargo may also consult with the FEMA Regional Project Officer to request support in the areas of selection of data sources, digital data accuracy standards, assessment of vertical data accuracy, data collection methods or sub-contractors, and GIS-based engineering and modeling training.

#### **9. Contractors:**

The City of Fargo intends to utilize the services of Houston Engineering, Inc., and Merrick & Company as contractors for this mapping project. The City of Fargo will ensure that procurement of contractors as part of this mapping project complies with the requirements of 44 CFR 13.36. Part 13 may be downloaded in PDF or text format from the U.S. Government Printing Office website at [http://www.access.gpo.gov/nara/cfr/waisidx\\_99/44cfr13\\_99.html](http://www.access.gpo.gov/nara/cfr/waisidx_99/44cfr13_99.html).

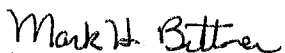
#### **10. Financial Reporting:**

Financial reporting requirements will be in accordance with Cooperative Agreement Articles V & VI.

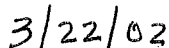
#### **11. Points of Contact:**

The FEMA Regional Project Officer is John Liou, P.E., C.F.M., and the CTP Project Manager is Mark H. Bittner, City Engineer, or subsequent personnel of comparable experience who are appointed to fulfill these responsibilities. When necessary, the assistance of the MCC should be requested through the Project Officer at FEMA Headquarters, Mike Grimm.

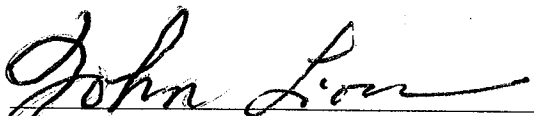
Each party has caused this Mapping Activity Statement to be executed by its duly authorized representative.



Mark H. Bittner, City Engineer

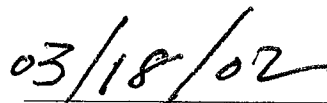


Date



John Liou, P.E., C.F.M.

Federal Emergency Management Agency



Date

# **APPENDIX A**

# **STANDARDS TABLE**

# Standards for Completing Work Under Mapping Activity Statement No. 2 for Fargo, ND

Activity Number	Activity Description	Applicable Portions of <i>Guidelines and Specifications for Flood Hazard Mapping Partners</i> (February 2002)
1	Field Surveys and Reconnaissance	Volume 1, Sections 1.2, 1.3, 1.4 (specifically Subsection 1.4.2.1) Appendix A, Sections A.5, A.6, A.7, and A.8 Appendices B, C, and M
2	Topographic Data Development	Volume 1, Section 1.4 (specifically Subsection 1.4.2.1) Appendix A, Sections A.2 and A.3 Appendix M
3	Independent QA/QC Review of Topographic Data	Volume 1, Section 1.4 (specifically Subsections 1.4.1 and 1.4.2.1) Appendix A, Sections A.2, A.3, A.7 (specifically Subsection A.7.5), and A.8 (specifically Subsection A.8.6) Appendix M
4	Hydraulic Analyses	Volume 1, Section 1.4 (specifically Subsections 1.4.2.2 and 1.4.2.4) Appendix A, Section A.4 (specifically Subsection A.4.7) Appendix C, Sections C.3 and C.7 Appendices B, E, F, G, H, and M
5	Independent QA/QC Review of Hydraulic Analyses	Volume 1, Section 1.4 (specifically Subsection 1.4.1) Appendix A, Section A.4 (specifically Subsection A.4.7) Appendix C, Section C.5 Appendices B, E, F, G, H, and M
6	Floodplain Mapping (Detailed Riverine Analysis)	Volume 1, Section 1.4 (specifically Subsection 1.4.2.3) Appendix C, Sections C. 4 and C.6 Appendices K, L, and M
7	Independent QA/QC Review of Floodplain Mapping (Revised Areas)	Volume 1, Section 1.4 (specifically Subsections 1.4.1 and 1.4.2.3) Appendix C, Sections C.4 and C.6 Appendices D, K, L, and M

Standards for Completing Work Under Mapping Activity Statement No. 2 for Fargo, ND

Activity Number	Activity Description	Applicable Portions of <i>Guidelines and Specifications for Flood Hazard Mapping Partners</i> (February 2002)
8	Base Map Acquisition and Preparation	Volume 1, Sections 1.3 (specifically Subsection 1.3.1.8) and 1.4 (specifically Subsection 1.4.3) ----- Appendices A and B
9	DFIRM Production (Non-Revised Areas)	Volume 1, Section 1.4 (specifically Subsections 1.4.2.3 and 1.4.3.2) ----- Appendices K, L, and M
10	DFIRM Production (Merge Revised and Non-Revised Information)	Volume 1, Section 1.4 (specifically Subsections 1.4.2.3 and 1.4.3.3) ----- Appendices K and L
11	Application of DFIRM Graphic and Database Specifications	Volume 1, Section 1.4 (specifically Subsection 1.4.3) ----- Appendices K and L
12	Preliminary DFIRM and FIS Report Distribution	Volume 1, Sections 1.4 (specifically Subsections 1.4.2 and 1.4.3) and 1.5 (specifically Subsection 1.5.1) ----- Appendices J, K, L, and M
13	Post-Preliminary Processing	Volume 1, Section 1.5 ----- Appendices J, K, L, and M